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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,655	11/21/2003	Naofumi Iwamoto	F00ED0440-DIV	9046
26071	7590	04/23/2004	EXAMINER	
JUNICHI MIMURA OKI AMERICA INC. 1101 14TH STREET, N.W. SUITE 555 WASHINGTON, DC 20005			NGUYEN, THINH T	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/717,655

Applicant(s)

IWAMOTO, NAOFUMI

Examiner

Thinh T Nguyen

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28-31, 34 and 35 is/are allowed.
- 6) ☒ Claim(s) 22-27, 32 is/are rejected.
- 7) ☒ Claim(s) 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☒ Certified copies of the priority documents have been received in Application No. 10/197,529.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED OFFICE ACTION

1. Claims 22-35 are pending in the Application.
2. The IDS forms submitted by the Applicant have three sheets, on the first two sheets the wrong Application number was listed on the PTO-1449 while the third sheet was just a PTO-892 form sent out to the Applicant in an Office Action related to the parent case.

Applicant is required to put the IDS in correct USPTO form PTO-1449 in the next communication with the Office (appropriate form and correct application number) in order for these documents to be considered.

Specification

3. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

Drawings

4. Fig. 21 to 27 are not designated by a legend such as "prior art". The legend is necessary in order to clarify what applicant's invention is (see MPEP paragraph 608.02).

Corrections are required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 22-27,32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (the AAPA) in view of Morifuji (U.S. patent 6,175,157).

REGARDING CLAIM 22

The AAPA (fig 21-27) discloses all the invention including a method of forming a semiconductor chip, comprising: providing a substrate having a main surface, the main surface including a frame-shaped first area, which is along sides of the main surface, and a second area encompassed by the first area; forming a pad (fig 21 ref 6) in the first area; forming a bump electrode (fig 25 reference 3) on the pad.

Missing in the AAPA is the teachings to form a resin-supporting member in the second area. Morifuji, however (in the abstract, in fig 7 reference 14c', Column 4 lines 61-67) teach how to make the support member (dummy bump in Morifuji terminology) in the second area.

It would have been obvious to one of ordinary skill in the art the time the invention was made to complement the teachings of Morifuji with the teachings of the AAPA in order to come up with the invention of claim 22.

The rationale is as the following:

Art Unit: 2818

A person of ordinary skill in the art at the time the invention was made would have been motivated to find a process which can improve the mechanical strength of the package and avoid the warping of the chips as suggested by Morifuji in his abstract.

REGARDING CLAIM 23

Morifuji (fig 1, fig 7, fig 8, column 3 line 12) discloses a method forming semiconductor chips wherein the support member includes a plurality of the supporting member.

The rationale why claim 23 is obvious under the AIPA and Morifuji has been discussed in the rejection of claim 22.

REGARDING CLAIM 24

Morifuji (column 3 line 25-27) discloses a method forming semiconductor chips wherein the support member (dummy bump in Morifuji terminology) and the bump electrode are formed of the same material.

The rationale why claim 24 is obvious under the AIPA and Morifuji has been discussed in the rejection of claim 22.

REGARDING CLAIM 25,26

Morifuji (column 2 lines 50-60, column 3 lines 12-24, fig 6) discloses a method forming semiconductor chips using pads and bump electrodes and the height of the support member (dummy bumps).

The rationale why claims 25,26 are obvious under the AIPA and Morifuji has been discussed in the rejection of claim 22.

Art Unit: 2818

REGARDING CLAIM 27

Morifuji (fig 8 reference 24, column 4 lines 65-67) teaches a method of making semiconductor that comprises the formation of a resin connector on the support member.

The rationale why a claim 27 is obvious under the AAPA and Morifuji has been discussed in the rejection of claim 22.

REGARDING CLAIM 32

Morifuji (the abstract, fig 1) teaches the formation of the supporting member in the center of the second area.

The rationale why a claim 32 is obvious under the AAPA and Morifuji has been discussed in the rejection of claim 22.

ALLOWABLE SUBJECT MATTER

8. Claims 28,29,30,34,35 are allowed.

Claims 28,29,30,34,35 are considered allowable because the prior fails to teach the limitations of a method of making a semiconductor having the steps of making a support member that has a tip and connecting the support member to the tape substrate and all other limitations recited in claim 28.

9. Claim 31 is allowed. Claim 31 is allowable because the prior fails to teach the limitations of a method of making a semiconductor that has the step of preparing an assemble apparatus having a recess at its center and all other limitations as recited in claim 31.

10. Claims 33 is objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

Claim 33 is considered allowable since the prior fails to teach a method of making semiconductor with supporting members that has the step of forming a second barrier metal formed under supporting member, the first and the second barrier metals being formed of the same material.

11. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

12. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

13. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) in parent Application 10/197,529 which papers have been placed of record in the file.

CONCLUSION

14. The prior arts made of record and not relied upon are considered pertinent to applicant disclosure: Ijima et al. (US patent 5,563,445) disclose a semiconductor device

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790. The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thinh T. Nguyen *TTN*
Art Unit 2818


David Nelms
Supervisory Patent Examiner
Technology Center 2800